IN THE CLAIMS:

1. (previously presented) A method for detecting collisions between an obstacle and an electromechanical system having a mechanical output controlled by a servo system, said method comprising:

inputting a forcing function x_i to the servo system to direct the mechanical output to move in an intended manner;

generating a difference signal at a monitoring point M representing a difference between forcing function x_i and a feedback signal dependent upon the mechanical output;

injecting a feed forward signal into the servo system, said feed forward signal dependent upon the forcing function and effective to increase a detection threshold for collision stimulus at monitoring point M; and

processing said difference signal to detect a collision.

2. (cancelled)

3. (cancelled)

4. (currently amended) A method in accordance with ~~Claim 21~~ Claim 22 wherein said optimizing transfer function y_o/x_2 comprises optimizing y_o/x_2 without the influence of the feed forward signal.

5. (cancelled)

6. (cancelled)

7. (currently amended) An imaging system comprising:

a radiation source;

a radiation detector positioned to receive radiation emitted by said source;

a servo system configured to position at least one of said source, said detector, and an object to be scanned; and

said imaging system configured to input a forcing function x_i to the servo system to direct at least one of said source, said detector, and said object to be scanned to move in an intended manner; generate a difference signal at a monitoring point M representing a difference between forcing function x_i and a feedback signal dependent upon a mechanical output; injecting a feed forward signal in said servo system, said feed forward signal dependent upon the forcing function and effective to increase a detection threshold for collision stimulus at monitoring point M; and process said difference signal to detect a collision.

8. (cancelled)

9. (cancelled)

10. (cancelled)

11. (cancelled)

12. (currently amended) A system in accordance with Claim 32 wherein said computer further configured to optimize y_o/x_2 without the influence of the feed forward signal.

13. (cancelled)

14. (cancelled)

15. (cancelled)

16. (cancelled)

17. (cancelled)

18. (cancelled)

19. (currently amended) A method of operating a servo system having an initial ~~aggressiveness~~ level of aggressiveness for responding to a collision and a predetermined desired ~~aggressiveness~~ level of aggressiveness for responding to an input control signal, said method comprising:

reducing the ~~initial aggressiveness~~ level of aggressiveness for responding to the collision; and

maintaining the desired ~~aggressiveness~~ level of aggressiveness for responding to the input control signal.

20. (currently amended) A method in accordance with Claim 19 wherein the servo system includes a feedback system, said reducing the ~~initial aggressiveness~~ level of aggressiveness comprises reducing the ~~initial aggressiveness~~ level of aggressiveness by optimizing the feedback system for collisions.

21. (currently amended) A method in accordance with ~~Claim 20~~ Claim 19 wherein said maintaining the desired ~~aggressiveness~~ level of aggressiveness for responding to the input comprises maintaining the ~~aggressiveness~~ level of aggressiveness for responding to the input by providing a feed forward term to the servo system.

22. (previously presented) A method in accordance with Claim 1 further comprising optimizing a transfer function y_o/x_2, wherein y_o is a signal representative of the mechanical output and x_2 is a load function.

23. (previously presented) A method in accordance with Claim 22 wherein said feed forward signal dependent upon the forcing function is selected to also optimize a transfer function y_o/x_i.

24. (previously presented) A method in accordance with Claim 21 wherein said feed forward signal is injected into a plurality of points in the servo system.

25. (previously presented) A method in accordance with Claim 1 further comprising initiating a command to stop movement when a collision is detected.

26. (previously presented) An apparatus comprising:

a servo system;

an electromechanical system having a mechanical output controlled by said servo system;

said servo system configured to input a forcing function x_i to the servo system to direct the mechanical output to move in an intended manner, generate a difference signal at a monitoring point M representing a difference between forcing function x_i and a feedback signal dependent upon said mechanical output, and inject a feed forward signal into the servo system, said feed forward signal dependent upon the forcing function and effective to increase a detection threshold for collision stimulus at monitoring point M; and

said apparatus further configured to process said difference signal to detect a collision.

27. (previously presented) An apparatus in accordance with Claim 26 further configured to optimize a transfer function y_o/x_2 of the servo system, wherein y_o is signal representative of said mechanical output and x_2 is a load function.

28. (previously presented) An apparatus in accordance with Claim 27 wherein said feed forward signal dependent upon the forcing function is selected to also optimize a transfer function y_o/x_i.

29. (previously presented) An apparatus in accordance with Claim 27 wherein y_o/x_2 is optimized without the influence of the feed forward signal.

30. (previously presented) An apparatus in accordance with Claim 26 configured to inject said feed forward signal into a plurality of points in said servo system.

31. (previously presented) An apparatus in accordance with Claim 26 further configured to initiate a command to stop movement when a collision is detected.

32. (previously presented) A system in accordance with Claim 7 further configured to optimize a transfer function y_o/x_2 of the servo system, wherein y_o is signal representative of said mechanical output and x_2 is a load function.

33. (previously presented) A system in accordance with Claim 32 wherein said feed forward signal dependent upon the forcing function is selected to also optimize a transfer function y_o/x_i.

34. (previously presented) A system in accordance with Claim 7 configured to inject said feed forward signal into a plurality of points in said servo system.

35. (previously presented) A system in accordance with Claim 7 further configured to initiate a command to stop movement when a collision is detected.